Amendments to the Specification:

Please replace the paragraph beginning at page 8, line 8, with the following rewritten paragraph:

--Gas enters an EGR cooler at very high temperature and ~~exists~~ exits at a much cooler temperature, as a desired result of the heat exchange. Cooling of the gas, however, results in a large change in the gas density as it passes through the cooler -- the lower the gas temperature, the greater its density. The result, in prior art coolers, is a comparatively high gas velocity in the first pass, and much lower velocity in subsequent passes, as the area in flow is unchanging between passes. The high velocity in the first pass causes parasitic pressure losses, and the lower velocity in the subsequent passes through the cooler core **10** results in reduced heat transfer. Gas side fouling is inversely related to gas velocity, so that the low gas velocity in the second (and any additional) passes increases the potential for undesirable system fouling. - -

Please replace the paragraph beginning at page 8, line 20, with the following paragraph:

--The present invention addresses and ameliorates the aforementioned problem by changing the area-in-flow corresponding to each pass through the core to accommodate changes in the exhaust gas density. Using a relatively larger number of passages (i.e., enlarged area-in-flow A_1 in equation (2)) in the first gas passage, and a lesser number of passages (relatively smaller area-in-flow A_2) on a second or subsequent passes, results in comparatively lower average gas velocity (V_1) in the first pass (thus reducing pressure drop in that pass). The reduced area-in-flow (A_2) in subsequent passes increases the fluid average velocity (V_2) in those passes compared to what it would be in a conventional equal ~~are~~ area design, thus increasing the heat transfer in the subsequent passes with a relatively small effect on pressure drop in those passes. A secondary but significant benefit is that surface temperatures in the first pass are reduced, thus reducing potential for coolant boiling and thermal cycle fatigue. The increased gas velocity in subsequent passes also reduces the potential for fouling.--

Please replace the paragraph beginning at page 11, line 9, with the following rewritten paragraph:

--The total number of exhaust passages **46, 47** in the collection of first-pass plenums substantially exceeds the total number of exhaust passages in the subsequent-pass plenums, so that the total area-in-flow in the first pass through the core **10** substantially exceeds the total area-in-flow in the second pass through the core, as seen in Figs. 2 and 3. The ratio of first area-inflow to the second area-in-flow therefore is greater than 1:1, preferably between about 1.3:1 and about 1.7:1. Thus when, as is preferred, all ~~the exhaust passages have equal radial cross sectional areas. When~~ the exhaust passages **46, 47, 49, 50** have generally equal radial cross sectional areas, the ratio of exhaust passages **46, 47** defined in the first-pass plenums **22, 24, 26, 28, 30** to the exhaust passages **49, 50** defined in the subsequent-pass plenums **22', 24', 26', 28', 30'** preferably is greater than 1:1, and preferably from about 1.3:1 (one point three to one) to about 1.7:1 (one point seven to one), inclusive, and most preferably about 1.4:1 (one point four-to-one). At ratios below 1.3:1, the beneficial effects fall off dramatically, and at ratios higher than 1.7:1, performance declines. ~~There~~ These ratios, however, are by way of example, and may be customized for a given core **10** to accommodate the gases, temperatures, and changes in gas density involved in the particular application. - -

Please replace the paragraph beginning at page 11, line 27, with the following rewritten paragraph:

-- As suggested in the drawing figures, the exhaust passages **46, 47** and **49, 50** preferably are defined by thin fins within the first-pass **22, 24, 26, 28, 30** and the subsequent-pass plenums **22', 24', 26', 28', 30'**. The fins conduct heat energy toward the ~~cooling~~ coolant plenums **12, 14, 16**, or **18**, in a manner similar to conventional radiators and exchangers.--